Claims

1. A method for preparation of Interleukin-4 or muteins of Interleukin-4 by recombinant expression comprising (a) expression in inclusion bodies, (b) disrupting the cells and separating the inclusion bodies, (c) washing inclusion bodies so obtained, (d) solubilizing the inclusion bodies by denaturation (e) renaturating the expression product and (f) purifying the expression product characterized in that the inclusion bodies are washed (c) with a buffer containing a detergent which effectively solubilizes lipids bound to the surface of the inclusion body or lipids contained in cell wall fragments. #

2. A method according to claim 1 wherein the detergent for washing the inclusion bodies is a non-ionic detergent, a ionic surfactant or a zwitterionic detergent.

3. A method according to claim 1 wherein the detergent is a zwitterionic detergent selected from the group , CHAPS, CHAPSO,desoxycholate and the zwittergent series (N-alkyl-N,N-dimethyl-3-ammonio-1-propanesulfonate).

4. A method according to any of claims 1 to 3 wherein the washing buffer for the inclusion bodies is a buffer which maintains the pH between 7 and 10.

5. A method according to any of claims 1 to 4 wherein the washing buffer additionally contains a chelating substance.

6. A method according claim 5 wherein the a chelating substance is selected from the group ethylenediamintetraacetic acid (EDTA), ethyleneglycol-O,O′-bis-(2-aminoethyl)-N,N,N′,N′-tetraacetic acid (EGTA), nitriloacetic acid (NTA) or trans-1,2-diamino-cyclohexan-N,N,N′,N′-tetraacetic acid (CDTA).

7. A method according to claim 1-6 wherein the recombinant protein is Interleukin 4 R121D Y124D.

8. The method according to any one of claims 1 to 7 wherein the renaturation (e) is done by dialysis, diafiltration or dilution optionally in the presence of artificial chaperones.

9. The method according to claim 8 wherein the renaturation (e) is done in the presence of artificial chaperones.

10. The method according to any one of claims 1 to 9 wherein the purification (f) is done by chromatography.